

## Bank marketing

**Creators:** Sérgio Moro (ISCTE-IUL), Paulo Cortez (Univ. Minho) and Paulo Rita (ISCTE-IUL) @ 2014

The binary classification goal is to predict if the client will subscribe a bank term deposit (variable  $y$ ).

### Attribute information:

Input variables:

# bank client data:

1 - age (numeric)

2 - job: type of job (categorical: "admin.", "blue-collar", "entrepreneur", "housemaid", "management", "retired", "self-employed", "services", "student", "technician", "unemployed", "unknown")

3 - marital: marital status (categorical: "divorced", "married", "single", "unknown"; note: "divorced" means divorced or widowed)

4 - education (categorical: "basic.4y", "basic.6y", "basic.9y", "high.school", "illiterate", "professional.course", "university.degree", "unknown")

5 - default: has credit in default? (categorical: "no", "yes", "unknown")

6 - housing: has housing loan? (categorical: "no", "yes", "unknown")

7 - loan: has personal loan? (categorical: "no", "yes", "unknown")

# related with the last contact of the current campaign:

8 - contact: contact communication type (categorical: "cellular", "telephone")

9 - month: last contact month of year (categorical: "jan", "feb", "mar", ..., "nov", "dec")

10 - day\_of\_week: last contact day of the week (categorical: "mon", "tue", "wed", "thu", "fri")

# other attributes:

11 - campaign: number of contacts performed during this campaign and for this client (numeric, includes last contact)

12 - pdays: number of days that passed by after the client was last contacted from a previous campaign (numeric; 999 means client was not previously contacted)

13 - previous: number of contacts performed before this campaign and for this client (numeric)

14 - poutcome: outcome of the previous marketing campaign (categorical: "failure", "nonexistent", "success")

# social and economic context attributes

15 - emp.var.rate: employment variation rate - quarterly indicator (numeric)

16 - cons.price.idx: consumer price index - monthly indicator (numeric)

17 - cons.conf.idx: consumer confidence index - monthly indicator (numeric)

18 - euribor3m: euribor 3 month rate - daily indicator (numeric)

19 - nr.employed: number of employees - quarterly indicator (numeric)

Output variable (desired target):

20 - y - has the client subscribed a term deposit? (binary: "yes","no")